

**DÉPARTEMENT DE SCIENCE ÉCONOMIQUE  
DEPARTMENT OF ECONOMICS**

**CAHIERS DE RECHERCHE / WORKING PAPERS**

**# 0301E**

**The Internal Migration of the Immigrant and  
Native-Born Populations in Canada  
between 1976 and 1996**

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**ISSN: 0225-3860**



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# **The Internal Migration of the Immigrant and Native-Born populations in Canada Between 1976 and 1996**

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July 2003

This research was funded by the Faculty of Social Sciences of the University of Ottawa. I wish to thank Kirk Collins for his research assistance. This paper was presented at the meetings of the Société canadienne de science économique, Montréal, May 14-15, 2003.

## Abstract

International immigration has changed not only the ethnic and cultural composition of the Canadian society, but it has also altered its geographical dispersion. Immigrants tend to locate in the major urban areas and thus contribute to accentuate the geographic concentration of the population. Some immigrants go to less populated areas, but many do not stay. The purpose of this paper is to look at the internal migration patterns of immigrants after they arrive in Canada and to compare them to those of the Canadian-born population. The study uses data from the four Canadian censuses of 1981, 1986, 1991 and 1996. The dependent variable is the probability of a migration during the five years that precede each census. Two variants are considered: (1) mobility between provinces and (2) mobility within and between provinces with an ordered choice model. The independent variables are the usual ones related to human capital and characteristics of the regions. Some of the results are: immigrants are on average less mobile than the Canadian-born, except at the local level; however, immigrants are more mobile than the Canadians who still live in their province of birth; mobility between provinces has decreased between 1976 and 1996; immigrants respond in a different way than the Canadian-born to some of the variables that determine mobility; immigrants tend to leave in larger proportions than the Canadian-born the provinces where there are few immigrants.

Keywords: Immigrants, Canada, internal migration, mobility, provinces.

JEL classification: J61

## Résumé

*Migration interne des immigrants et des Canadiens de naissance entre 1976 et 1996.* L'immigration internationale a changé non seulement la composition ethnique et culturelle de la population canadienne, mais aussi sa répartition géographique. Les immigrants ont tendance à se localiser dans les grands centres urbains et contribuent à accentuer la concentration géographique. Certains immigrants vont dans des régions moins peuplées, mais plusieurs n'y restent pas. Cette étude a pour but d'analyser les facteurs qui déterminent les migrations internes des immigrants et de comparer leur comportement à ceux des Canadiens de naissance. L'étude utilise les données des quatre recensements canadiens de 1981, 1986, 1991 et 1996. La variable dépendante est la probabilité d'une migration interne durant les cinq années précédant chaque recensement. Deux variantes sont considérées: 1) le déplacement entre provinces et 2) le déplacement à l'intérieur et

entre les provinces avec un modèle de choix ordonnés. Les variables indépendantes sont les variables habituelles reliées au capital humain et aux caractéristiques des régions. Certains des résultats sont: les immigrants sont en moyenne moins mobiles que les Canadiens de naissance, sauf au niveau local; cependant, les immigrants sont plus mobiles que les Canadiens qui habitent toujours dans leur province de naissance; la mobilité entre provinces a diminué entre 1976 et 1996; les immigrants répondent de façon différente des Canadiens de naissances à certaines des variables qui déterminent la mobilité interne; les immigrants ont tendance à quitter en proportions plus grandes que les Canadiens de naissance les régions où il y a peu d'immigrants.

Mots-clés: Immigrants, Canada, Migration interne, mobilité, provinces.

Classification JEL: J61

# **The Internal Migration of the Immigrant and Native-Born populations in Canada Between 1976 and 1996**

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## **1. Introduction**

Immigration is rapidly changing the shape of the Canadian society. Not only is the ethnic and cultural distribution of the population being significantly modified, but the geographical dispersion is being altered as well. Immigrants tend to locate in the larger metropolitan areas, such as Toronto, Montreal and Vancouver, very often because there are already members of their ethnic communities in those areas, but also because there are more economic opportunities. There are also immigrants who establish themselves in the less populated regions and they are often encouraged to do so, but many of them do not stay where they originally arrived and move to the large metropolitan areas. Of course, other Canadians move to the same areas, with the consequence that the Canadian population is becoming more and more concentrated geographically.

To assess the impact of immigration on Canada and its regions, it is important to understand the mobility behaviour of immigrants and native-born Canadians. The purpose of this paper is to look at the internal migration patterns of immigrants after they arrive in Canada and to compare them to those of the Canadian-born population, using four Canadian censuses covering mobility by five-year interval between 1976 and 1996. The questions to be addressed include: How do immigrants and native-born Canadians compare in terms of their propensity to move and do they both contribute to increasing

geographic concentration? Do the immigrants and native-born respond to the same factors in their moving decisions, and in particular how does the behaviour change with years since migration? Was there any change over time in moving behaviour?

There are important policy issues related to internal migration in Canada. A lot of resources and efforts have been invested to develop the Canadian regions and to encourage people to remain and to move to the less developed areas. Those include industrial investment and transfer programs. In Canada, people are allowed to migrate freely between regions and the governmental programs can only provide incentives to move or to remain in certain regions. International immigrants are also free to move once they are in Canada, but some special provisions may apply to them. For instance, some immigrants enter into Canada with the understanding that they will reside in a certain region where immigrants are few and where the government would like to see more. However, those immigrants cannot be forced to stay where they are and they may eventually move to regions where there is already a concentration of immigrants. In Canada, policies to induce immigrants to locate in remote regions have not been successful. The analysis of the factors that influence the mobility of immigrants done in this study may help understand better why the policies have failed.

This paper is organized as follows. Section 2 is a brief review of past studies on the internal migration of immigrants in the United States and Canada. Section 3 introduces the conceptual framework, the data and the modelling strategy. Section 4 presents descriptive statistics. Section 5 presents results of multivariate binary and ordered probit analysis. Section 6 is the conclusion.

## **2. Review of Previous Studies**

There is a large economic literature that deals with the economic integration of international immigrants, and there is also an abundant literature that considers internal migration in general, but there is only a small interaction between the two. Table 1 summarizes some of the recent U.S. and Canadian studies on the internal migration of immigrants.

**Table 1. Survey of Studies on the Migration of immigrants, United States and Canada (page 1)**

Study	Research question	Data	Methodology	Major results
<b>U.S. Studies</b>				
Bartel, Ann P. and Marianne J. Koch. 1991.	Examines dispersion of U.S. immigrants upon arrival and whether they change locals as time progresses. Also look at determinant of internal migration and mobility effect on earnings.	Public Use B Sample of the 1980 Census of Population. Also use <i>Statistical Abstract of the United States, State and Metropolitan Area Databook</i> and <i>Public Assistance Statistics</i> to determine certain variables in regression. Age; 22-54 (at arrival in U.S.); three cohorts of immigrants	Calculates Herfindahl Indices to examine mobility patterns and uses Logit model for empirical analysis Dep var: prob change SMSA 1975-80. Ind vars: educ, age, language, SMSA population, SMSA u-rate, SMSA wage, SMSA welfare benefits, SMSA Prop foreign,	“...although recent immigrants to the United States move between SMSAs [standard metropolitan statistical areas] at a rate that is comparable to or in some cases exceed that of ethnic natives, there is little systematic evidence that this immigrant population becomes more geographically dispersed as time in the United States elapses.”
Belanger, Alain and Andrei Rogers. 1992.	“...examines the importance of place of birth on the internal migration and spatial redistribution of the foreign-born population in the United States during the 1965-70 and the 1975-80 periods...”	1970 and 1980 U.S. Census data (Public Use Microdata Sample)	Logit model and probability analysis in combination with multiregional life tables	Show that “... the foreign-born account for a growing share of the total U.S. population, that they are distributed differently across the national territory than are the U.S.-born, that their propensity to migrate seems to be increasing over time, that the directional bias of their internal migration flows (like that of the U.S.-born) is toward the South and West and that, from a life course perspective, in most instances they are less ‘attached’ to their region of residence than are the U.S. born.”

**Table 1. Survey of Studies on the Migration of immigrants, United States and Canada (page 2)**

Study	Research question	Data	Methodology	Major results
Walker, Robert, Mark Ellis and Richard Barff. 1992	“The particular goal of this paper is to analyze the association between immigration and domestic flows of labor.”	1980 U.S. Census data (Public Use Microdata Sample “A” 5% sample) Also used data from <i>Places Rated Almanac (1981)</i> .	Econometric estimation of a system of jointly dependent variables, by SMSA. (OLS, 3SLS) Dep vars: num of immigrants, net mig blue collar, net mig profess, growt in value added; ind vars: same + pop, prop foreign, u-rate, wages, labour force growth, house price, educ spending, taxes, crime, arts rating, climate, regional dummies.	“...find that native blue-collar workers have been spatially displaced by recent immigration and that the process of capital accumulation, as manifested in economic restructuring, is the driving force behind the mobility system, affecting both immigration patterns and the destination choices of white-collar workers...we suggest that previous estimates of immigrant impacts on local labor markets may be underestimated.”
Kritz, Mary M. and June Marie Nogle. 1994	“Are immigrants who live in states where large numbers of their compatriots reside more or less likely to migrate than those who live in other states?”	1980 U.S. Census Data (Public Use A Sample) Household heads age 25-65.	Multinomial logistic regression (no mig, intra state, inter state). Ind vars: age, educ, gender, language, self-empl, nativity concent., nativity dummies, NY residence, u-rate, time U.S.	“Nativity concentration at the state level deters interstate migration but has less effect on intrastate migration; this result suggests that immigrants hesitate to move away from states that offer them social capital in the form of association with others of their nativity group.”

**Table 1. Survey of Studies on the Migration of immigrants, United States and Canada (page 3)**

Study	Research question	Data	Methodology	Major results
Frey, William H. 1995a	<p>“This paper seeks to understand the nature of... immigration-induced flight in a case study of California.”</p> <p>It also analyzes the impact of interstate migration from California on nearby states</p>	1990 U.S. Census data.	Quantitative Descriptive Analysis	<p>Results suggest, “...that California’s out-migration consists of two different migration systems: first, an immigration-induced ‘flight’ that exports lower income and less-educated Californians...And second, a more conventional migration exchange with the rest of the United States that involves the redistribution of better educated, higher income migrants.” Also, “...irrespective of changing economic conditions in the state, the continued immigration of low-skilled migrants will lead to more losses of native-born internal migrants to neighboring states and metropolitan areas.”</p>
Frey, William H. 1995b	<p>“The purpose of this article is to examine... migration dynamics for metropolitan areas rather than states.”</p>	<p>1990 census (migration census tabulations)</p> <p>Also used is the 1980 Census and the <i>State and Metropolitan Area Data Book, 1991</i></p>	<p>Descriptive analysis with list of areas with high and low migration. Multivariate regression. Dep var: internal mig level for metro area; ind vars: metro dummies, economic structure, population, minority populations.</p>	<p>Findings “...suggest that the immigration and internal migration processes are leading to a greater demographic balkanisation—a spatial segmentation of the population by race-ethnicity and socio-economic status across metropolitan areas.”</p>

**Table 1. Survey of Studies on the Migration of immigrants, United States and Canada (page 4)**

<b>Study</b>	<b>Research question</b>	<b>Data</b>	<b>Methodology</b>	<b>Major results</b>
Newbold, K. Bruce 1999	“This paper explores the proposition that the internal migration of the foreign-born (pre-1985 arrivals) is likely to reinforce the demographic effects of immigration.”	1990 U.S. Census data (Public Use Microdata Sample 5% sample)	Quantitative Descriptive Analysis, by state and SMSA. Dep vars: Concentration of foreign born, mobility of foreign-born, direction of internal migration.	“Despite high internal migration rates and large net migration, there was little change in the overall distribution and concentration of the foreign-born population between 1985 and 1990. More important, however, distinctions were found across the national origin groups. While secondary migration leads to dispersion among some groups, other groups were becoming increasingly concentrated suggesting that the demographic balkanization of the American population is more variable than the literature would suggest.”
Rogers, Andrei and Sabine Henning. 1999	“The focus of this article is on an examination of the influence of birth-place on the internal migration and spatial redistribution patterns of foreign-born and native-born population in the United States during 1975-80 and 1985-90 periods.”	1980 and 1990 U.S. Census data (Public Use Microdata Sample, 5% sample)	Multiregional life table methodology	“...internal migration levels, directions and redistributive impacts of the 1975-1980 and 1985-1990 internal migration patterns of the foreign born in the United States...differ, both among subgroups of the foreign born and in comparison to the patterns of the native born.
<b>Canadian Studies</b>				
Newbold, K. Bruce 1996)	Explain interprovincial migration patterns of foreign born in Canada and compare to Canadian born	1986 Canadian Census Public Use Data  Age 20-64	Multivariate nested logit: two level choice: (1) depart or stay; (2) if depart, choice of prof of destination. Ind vars: income, empl growth, unempl. rate, coldness, cultural similarity, log of distance, population size, age, educ, language, fam type, pl. of birth	Foreign born have higher migration rates. Foreign born react in similar fashion to opportunities as Canadian born migrants.

**Table 1. Survey of Studies on the Migration of immigrants, United States and Canada (page 5)**

<b>Study</b>	<b>Research question</b>	<b>Data</b>	<b>Methodology</b>	<b>Major results</b>
Lin, Zhengxi. 1998	Interprovincial labour mobility behaviour of immigrants	1988-1990 LMAS age 16 to 69 in 1988	Utility of moving. Binomial probit and logit regressions. Dep var: prob. change prov. Ind. vars: immig, ch. earnings, job unavail. index, educ, age, language, fam size, job tenure, pension, union, Empl, Insur., social assist, training.	“No statistically significant structural differences in determinants of interprovincial migration decisions between foreign- and native-born Canadians”.
Ram, Bali and Y. Edward Shin 1999	Examine internal migration patterns of foreign born Canadians in an attempt to determine if internal migration can be regarded as a social indicator	Individual level microdata files for 1991 Canadian Census used for regressions. 1981 and 1991 data used for “cohort” analysis	Binomial logit regressions. Dep var: prob migrate. Ind. vars: place of birth, period of immigration, age, schooling, language, marital status.	“ [They] present evidence to suggest that the assimilation hypothesis does not provide an adequate explanation of migration patters of immigrants who have already established ethnic communities in the host country.” Foreign born, from different geographical areas have markedly different characteristics when it comes to internal mobility. Authors conclude that “...no single hypothesis can adequately explain the migratory behaviour of all immigrant groups.”

In the U.S., the issue whether or not immigrants disperse themselves after their arrival and whether or not they move to the same places as the native-born population has been the subject of some attention. It is known that immigrants tend to concentrate in a few states, such as California, Florida and Texas. Bartel and Koch (1991) used dispersion indices with data from the 1980 census and found little evidence that immigrants became more geographically dispersed through time. Newbold (1999) also found, using the 1990 census, that internal migration did not change much the geographical concentration of immigrants. There was, however some variation across national origin groups. A key variable is the existence of ethnic networks. Kritz and Nogle (1994) considered the impact of nativity concentration and found that it deterred migration between states, but not necessarily mobility within a state. Rogers and Henning (1999) used multiregional life table methodology to examine the influence of place of birth on internal migration and found that migration patterns of various foreign-born groups differ among each other and from those of native-born. In general, foreign-born tend to stay or to move to the West, while the native-born tend to stay or to move to the South. Belanger and Rogers (1992) found similar results.

Some U.S. studies have examined the mobility behaviour of native-born of various skill levels in relation to immigration. Walker, Ellis and Barff (1992) found that native blue-collar workers have been displaced by international immigration. Frey (1995a) considered the particular case of California and found that native-born low income and low education workers tended to move out of that state in response to immigration, while it was not the case for the more skilled Californian workers. From his analysis with 1980 and 1990 census data, Frey (1995b) concluded that international immigration and internal migration have led to an increased demographic “balkanisation” in the United States. However, this finding was criticized by Newbold (1999) who argued that “there are diverse and complex patterns for both concentration and dispersion” (page 274).

There are fewer studies on the internal mobility of immigrants in Canada than in the U.S.. Newbold (1996) used the 1986 census to study migration of immigrants and native-born Canadians between 1981 and 1986 . He found that migration rates of the foreign-born are lower than those of the Canadian-born who have already migrated, but higher than those who have not. From a multivariate analysis, he concludes that foreign-born react to economic opportunities in a similar fashion as other Canadians. Lin (1998) used the Labour Market Activity Survey to analyse interprovincial mobility of foreign-born and native-born between 1989 and 1990. He found that, while immigrants are slightly less

mobile than native-born Canadians, there are no structural differences between the two groups in interprovincial migration behaviour. Ram and Shin (1999), using data from the 1991 census, also found that immigrants are less mobile than native-born. From a regression on male migrants, they estimated among other things that the mobility of immigrants decreased with duration in Canada.

While those studies have shed light on the mobility of immigrants, some questions remain. For instance, two of the three above cited Canadian studies do their multivariate analysis with a sample of foreign-born only, which precludes formal comparisons with native-born. Newbold (1996) concludes that the foreign-born have similar behaviour to that of native-born, but this assessment comes only from a comparison with earlier studies. A formal comparison of the behaviour of immigrants and native-born is included in the analysis performed by Lin (1998), but the results suffer from the drawback that the sample of immigrant movers in the one-year period considered in that study is very small. In the present study, internal mobility will be examined with a large sample that includes both native-born and immigrants. In addition, by pooling four cross-sectional data sets, the evolution over time of mobility behaviour can be examined. Finally, another new feature of this study is that both mobility between provinces and within a province will be considered. Most studies on internal migration define mobility as a change in the province or residence, ignoring movements within the same province.

### **3. Conceptual framework, model and data**

The standard economic approach to internal migration is to consider it as an “investment increasing the productivity of human resources” (Sjaastad, 1962, page 83). Potential migrants appraise the costs and returns of moving and decide to do so if the present value of the benefits is larger than that of the costs. Those include the changes in incomes and employment opportunities that follow from moving that can, in principle, be transposed into monetary units. For instance, wages, taxes and transfers are usually considered. But less tangible elements related to information and psychic costs are also important. For example, it is known that having friends or relatives in a potential destination area will help the migrant to get information about employment opportunities and provide a social and cultural network.

Immigrant and native-born people are rational economic agents and are expected to behave according to the same general analytical framework. However, there are aspects specific to immigrants. By definition, immigrants have already made a move and for that reason they may be less attached to the place where they live than people who have stayed there all their life. On the other hand, immigrants chose the Canadian region in which they located on the basis of the available economic opportunities and the presence of an ethnic network (McDonald, 2002). If their original choice was made optimally, they have no incentives to move, at least initially. However, as they remain in Canada, circumstances may change and their initial location choice may no longer be optimal.

In this study, we will use census micro-data to investigate the behaviour of Canadian-born and foreign-born individuals in their propensity to move to a different place or province, i.e., their out-migration. The advantage of the census is that it provides a very large sample that allows the investigation of the behaviour of immigrants even in provinces where they are few, such as the Atlantic provinces. For our purposes, out-migration is defined as the probability that a person's place of residence at the time of a given census is different from the place of residence five years earlier. As in most earlier studies, migration between provinces is considered with a binary choice model. But people can change residence also within a province and an ordered choice model is also used to evaluate different degrees of mobility. The information available from the Canadian census allows the distinction between the following levels of mobility: (1) Not moving; (2) Moving in the same *Census subdivision*<sup>1</sup>; (3) Moving in a different Census subdivision but in the same *Census division*<sup>2</sup>; (4) Moving in a different Census division but in the same province; (5) Moving to a different province.

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<sup>1</sup> “Census subdivision is the general term applying to municipalities (as determined by provincial legislation) or their equivalent (for example, Indian reserves, Indian settlements and unorganized territories)” (Statistics Canada, 1996 Census Directory, Cat. No. 92-351-UIE, p. 195)

<sup>2</sup> “Census division is the general term applied to areas established by provincial law which are intermediate geographic areas between the municipality (census subdivision) and the province level. Census divisions represent counties, regional districts, regional municipalities and other types of provincially legislated areas.” (Statistics Canada, 1996 Census Directory, Cat. No. 92-351-UIE, p. 180)

A person's preference for moving can be thought of as latent unobservable variable  $y^*$  which is defined as a linear function of a vector of exogenous variables  $X$  :

$$y^* = X\beta + u$$

where  $u$  is an error term.

For the binary choice model determining the moves between provinces, we observe  $y=0$  (no move) if  $y^* \leq 0$  and  $y=1$  (move) if  $y^* > 0$ . Assuming that  $u$  follows a normal distribution, we get the binary probit model.

For the ordered choice model determining moves both within and between provinces, we observe  $y = 0$  if  $y^* \leq 0$ ,  $y = 1$  if  $0 < y^* \leq c_1$ ,  $y = 2$  if  $c_1 < y^* \leq c_2$ ,  $y = 3$  if  $c_2 < y^* \leq c_3$  and  $y = 4$  if  $c_3 < y^*$  where  $y = 0$  correspond to not moving,  $y = 1$  corresponds to moving within the same Census subdivision,  $y = 2$  corresponds to moving to a different Census subdivision within the same Census division,  $y = 3$  correspond to moving to a different Census division within the same province, and  $y = 4$  corresponds to moving to a different province. Assuming that  $u$  follows a normal distribution, we get the ordered probit model. The parameters  $c_1$ ,  $c_2$  and  $c_3$  are thresholds in the latent variable that induce change in behaviour. Note that because the scale of the latent variable is indeterminate, the first threshold is arbitrarily set to zero, leaving only three threshold parameters to be estimated for the five level choice model.

The independent variables include the factors that may influence the costs and benefits of migration. Some are particular to each individuals and come directly from the micro-data base. They are age, marital status, education, language, immigrant status, place of birth in a different province for the Canadian-born, region of the world of birth for immigrants, years since migration for immigrants. Some variables are defined at the provincial level for the province of residence five years earlier. They include the average unemployment rate and the average real wage during the five previous years. In addition, since we are pooling cross-section over four time periods, fixed effects for province and time are included. Those will capture the factors not already included among the other independent variables, such as different tax and transfer programs, ethnic networks,

temperature, etc.<sup>3</sup> Since the purpose of this paper is to compare immigrants to Canadian-born individuals, some specifications of the model will include the immigrant status dummy variable interacted with the other independent variables.

The data come from the public use files of the 1981, 1986, 1991 and 1996 censuses. The focus is on the working aged population, which is defined as individuals aged between 20 and 64 years at the time of each census. For immigrants, only those who have been at least five years in Canada are included. People who lived in Prince-Edward-Island, the Yukon and the North-West-Territories five years prior to each census were removed because of the information about those areas was not consistent for all the censuses. Since those areas have relatively small populations, this omission does not have serious consequences. Given the large amount of data, a 20% random sample from the available records was taken from the Canadian-born individuals, but 100% of the immigrants were taken. Results are weighted accordingly. The total size of the pooled sample amounts to more than 500,000 individuals.

#### **4. Descriptive statistics**

Table 2 presents the percentage distribution by province of the foreign-born and Canadian-born populations for each of the four censuses. The foreign-born are a larger percentage than the Canadian-born population in only two provinces for all four censuses: Ontario and British Columbia. Ontario is the home of more than half of the immigrant population, while slightly less than one in five live in British Columbia. In one province, Alberta, the two groups account for about the same proportion of their total populations, i.e. a little bit less than one in ten, with some variation over time. While more than 13% of Canadian immigrants live in Quebec, this proportion is less than half the share of that province in the total Canadian-born population. In all the other provinces, the share of immigrants is small and markedly below that of the Canadian-born population. For instance, in 1996, the three Atlantic provinces (Newfoundland, Nova Scotia and New

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<sup>3</sup> The independent variables included in internal migration regressions depend on the focus of the study and on the availability of information. For instance, Finnie (2000) and Day and Winer (2001) use data constructed from income tax files and include variables such as social assistance and provincial spending on different types of programs.

**Table 2. Distribution of Foreign-Born and Canadian-Born by Province, Canada, 1981, 1986, 1991, 1996**

Province	1981		1986		1991		1996	
	Foreign-born	Canadian-born	Foreign-born	Canadian-born	Foreign-born	Canadian-born	Foreign-born	Canadian-born
Percentage								
Newfoundland	0.25	2.80	0.24	2.73	0.20	2.41	0.18	2.34
Nova Scotia	1.07	3.94	1.04	3.97	0.90	3.75	0.87	3.72
New Brunswick	0.69	3.25	0.76	3.15	0.57	3.05	0.51	3.02
Quebec	13.63	28.93	13.58	28.13	13.84	27.70	13.75	27.25
Ontario	52.51	32.52	53.18	33.22	54.76	33.99	54.60	33.91
Manitoba	3.82	4.43	3.66	4.28	3.12	4.17	2.69	4.09
Saskatchewan	2.12	4.31	1.86	4.43	1.31	4.13	1.05	3.98
Alberta	9.50	9.33	9.51	9.47	8.82	9.59	8.17	9.71
British Columbia	16.41	10.49	16.16	10.60	16.47	11.20	18.18	11.99
Total	100	100	100	100	100	100	100	100

Note. Prince-Edward-Island, Yukon and Northwest Territories are excluded.

Source: Author's calculation from Public Use Census micro-data.

Brunswick) accounted for nine percent of the Canadian-born population, but only for one and a half percent of the foreign-born population. The foreign-born are also relatively few in Manitoba and Saskatchewan, but the difference with the Canadian-born is not as large as in the Atlantic provinces.

Looking at changes over time, we can see that the proportion of foreign-born tended to decrease in the provinces where they were originally few and to increase where they were originally many. Therefore, there was an increase in the concentration of the immigrants between 1981 and 1996. For instance, while 52.5% of the foreign-born lived in Ontario in 1981, this was the case for 54.6% of them in 1996. In British Columbia, this number increased from 16.4% to 18.2% during the same period. In Quebec, the proportion remained quite stable, while it decreased in all other six provinces. For example, the three Atlantic provinces included 2% of the immigrants in 1981, which is half a percentage point more than in 1996.

Table 3 shows the various degrees of five-year mobility for the foreign-born and the Canadian-born individuals from the period 1976-81 to the period 1991-96. This allows the examination of mobility both within and between provinces. For any given five-year period, the proportion of non movers, i.e., those who did not change their residence during the previous five years, is around half of the population and it has increased slightly during the period under consideration. This proportion is also slightly higher for immigrants than for Canadian-born. In 1996 for example, 55.6% of immigrants were non movers, compared to 54.0% of Canadian-born. In addition, the moving patterns are different between the two groups, immigrants tending to move more on short distances and less on long distances. In other words, immigrants are more mobile than the Canadian-born at the local level (within the same Census subdivision), but less at the regional or interprovincial level (across Census subdivisions, Census divisions and provinces). For example, 3.3% of immigrants changed province between 1991 and 1996, compared to 3.9% for the Canadian-born. This is perhaps an indication of the effect of ethnic networks on the mobility behaviour of immigrants.

Another important feature of Table 3 is that mobility has decreased over time. The trend is clear at the interprovincial level, mobility having decreased by about two percentage points from 1976 to 1996 for both the foreign-born and the Canadian-born. At the other levels, there are more fluctuations and it is more difficult to identify a trend.

**Table 3. Five-Year Mobility Status, Foreign-Born and Canadian-Born, Age 20-64, Canada, 1976-81 to 1991-96**

	1976-81		1981-86		1986-91		1991-96	
Mobility status	Foreign-Born	Canadian-Born	Foreign-Born	Canadian-Born	Foreign-Born	Canadian-Born	Foreign-Born	Canadian-Born
Percentage								
Non Movers	51.7	48.5	57.3	52.2	54.3	51.3	55.6	54.0
Same Census sub-division	29.1	27.7	27.3	27.1	26.4	25.2	28.7	25.6
Different Census sub-division, same Census division	5.0	5.6	4.0	4.8	5.7	6.5	4.9	5.5
Different Census division, same province	8.9	12.0	7.7	11.0	9.8	12.6	7.4	10.9
Different province	5.3	6.2	3.8	4.8	3.9	4.5	3.3	3.9
Total	100	100	100	100	100	100	100	100

Note. Prince-Edward-Island, Yukon and Northwest Territories are excluded. Only immigrants who have been at least five years in Canada are included.

Source: Author's calculation from Public Use Census micro-data.

The gross out-migration rates by province are shown in Table 4. Those rates refer to the people who leave a given province during a five-year period; they are “gross” because people who may have entered that province during the same period of time are not counted. This corresponds to the dependent variable of the regression analysis of the next section. Table 4 confirms the tendency toward geographic concentration of immigration suggested earlier. In the provinces which have few immigrants, the out-migration rate of foreign-born tends to be higher than that of the Canadian-born, thus accelerating the concentration. This is especially true for the Atlantic provinces. The most dramatic case is the one of Newfoundland, where about one foreign-born out of four left that province during each of the five-year periods; of course, Newfoundland lost many of its residents during that time, but the rate was three times less for the Canadian-born than for the foreign-born. On the other hand, the provinces where the immigrants go in the largest numbers, Ontario and British Columbia, had lower out-migration rates for the foreign-born than for the Canadian-born. Consistently with what was observed before, Alberta has out-migration rates which are about the same for both the Canadian-born and the foreign-born. In Manitoba, the rates are slightly higher for foreign-born, while Saskatchewan has lost a lot of its immigrants in the recent years.

The case of Quebec is somewhat special. In spite of a large concentration of immigrants in Montreal, the out-migration rate of immigrants is very much higher than that of the Canadian-born. This can be explained by the fact that out-migration of the Canadian-born is much lower in Quebec than in other provinces, (with a few exceptions) mainly because of the French language barrier. Immigrants, who are presumably less attached to the French language than other residents of Quebec, will not hesitate to move to another province if they see some economic opportunities. This illustrates one difficulty of the immigration policy which is partly under the control of the Quebec government. In spite of the efforts to attract immigrants who will integrate well to the Quebec society, many of them do not stay.

## **5. Multivariate analysis**

The determinants of migration are examined for the mobility between provinces and the mobility within and between provinces with the framework presented earlier. In the first stage (tables 5 and 6), the models are estimated for the entire samples with dummy variables for immigrants. For the latter, the number of years since migration is either

**Table 4. Gross Out-Migration Rate, by Province, Foreign-Born and Canadian-Born, Age 20-64, Canada, 1976-81 to 1991-96**

Province	1976-81		1981-86		1986-91		1991-96	
	Foreign-Born	Canadian-Born	Foreign-Born	Canadian-Born	Foreign-Born	Canadian-Born	Foreign-Born	Canadian-Born
Newfoundland	24.26	8.64	19.21	9.01	26.82	7.32	25.86	7.59
Nova Scotia	15.50	11.77	13.33	6.19	14.85	7.52	12.83	6.99
New Brunswick	19.23	10.51	13.39	7.18	16.36	6.91	10.30	5.48
Quebec	8.14	3.20	5.12	2.23	4.42	1.50	4.88	1.44
Ontario	3.25	5.97	1.63	3.13	1.79	3.20	1.83	3.46
Manitoba	12.54	10.88	8.03	7.19	12.03	8.79	8.25	7.42
Saskatchewan	11.40	9.63	12.32	7.08	21.13	11.34	17.86	6.94
Alberta	8.68	8.77	8.98	11.83	9.05	9.34	7.29	7.26
British Columbia	4.28	6.48	3.94	6.95	3.26	5.24	2.09	4.17

Note. Prince-Edward-Island, Yukon and Northwest Territories are excluded. Only immigrants who have been at least five years in Canada are included.

Source: Author's calculation from Public Use Census micro-data.

excluded (column 1) or included (column 2). In the second stage (tables 7 and 8), the immigrant dummy variable is interacted with all the other independent variables in order to see if the two groups respond in a similar way to the variables that determine migration.

Table 5 presents the binary probit estimates for interprovincial migration. The probit coefficients show the effects of the independent variables on the latent variable determining the preference for moving. Their signs and statistical significance indicate the relationships between each variable and the probability to move. As is often done with binary choice models, the marginal effects of a unit change of the independent variables on the probability of moving are also shown in order to provide an easier interpretation. Since the relationship is nonlinear, those are evaluated at the means of the other independent variables.

The coefficients of Table 5 are to a large extent consistent with what one would expect from human capital theory. Age has a negative effect on interprovincial mobility; the coefficient of the square of age indicates the effect becomes more negative as ages increases, but it is not statistically significant. Females are less interprovincially mobile than males, but marital status does not appear to be important. Education affects interprovincial mobility positively as expected, one more year of schooling increasing the probability of mobility by 0.3%. People whose mother tongue is French (most of them living in Quebec) move less between provinces than those whose mother tongue is English. Those with other mother tongues are also less mobile than those of English mother tongues, but the effect is smaller than for French. High provincial unemployment rates induce out-migration from those provinces. However, higher average wages in the province of origin affect out-migration positively; this is somewhat contrary to expectations and it is not clear why we obtain this result.<sup>4</sup> The coefficients of the provincial dummy variables indicate that mobility is higher from most of the provinces other than Ontario (the province of reference). The exceptions are British Columbia and Quebec (the latter coefficient is not significant). The provincial dummy variable regression coefficients confirm to some extent what the descriptive statistics showed, i.e., the population tends to concentrate to the largest provinces. The coefficients of the period variables indicate that mobility tended to decrease over time, with possible cyclical fluctuations; for instance, interprovincial mobility was lower during recessions of early the 1980s and 1990s.

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<sup>4</sup> In specifications that did not include provincial dummy variables, the average provincial wage variable had the expected effect.

**Table 5. Binary Probit Estimates, Five-Year Mobility Between Provinces, Canada, 1976-81 to 1991-96**

VARIABLE	(1)			(2)		
	Probit Estimate	Standard Error	Marginal effect	Probit Estimate	Standard Error	Marginal effect
<b>Intercept</b>	-2.2800	0.1023	-0.1473	-2.2842	0.1025	-0.1470
<b>Age</b>	-0.0195	0.0012	-0.0013	-0.0188	0.0012	-0.0015
<b>Age squared</b>	-0.0000019 *	0.0000153	-0.0000001	-0.0000099 *	0.0000154	-0.0000008
<b>Sex and marital status (Ref: male unmarried)</b>						
Male married	0.0008 *	0.0061	0.0001	-0.0001 *	0.0061	0.0000
Female unmarried	-0.0193	0.0067	-0.0012	-0.0194	0.0067	-0.0016
Female married	-0.0127	0.0060	-0.0008	-0.0139	0.0060	-0.0011
<b>Years of schooling</b>	0.0390	0.0007	0.0025	0.0391	0.0007	0.0032
<b>Mother tongue (Ref: English)</b>						
French	-0.2847	0.0073	-0.0184	-0.2845	0.0073	-0.0231
Other	-0.1577	0.0072	-0.0102	-0.1638	0.0072	-0.0133
<b>Provincial unemployment rate</b>	0.0597	0.0024	0.0039	0.0594	0.0024	0.0048
<b>Provincial average wage</b>	0.000011	0.000004	0.0000007	0.000010	0.000004	0.0000008
<b>Province of residence 5 years ago (Ref: Ontario)</b>						
Newfoundland	0.0803	0.0321	0.0052	0.0787	0.0321	0.0064
Nova Scotia	0.2571	0.0251	0.0166	0.2536	0.0251	0.0206
New Brunswick	0.2391	0.0260	0.0154	0.2361	0.0260	0.0192
Quebec	-0.0140 *	0.0146	-0.0009	-0.0158 *	0.0146	-0.0013
Manitoba	0.5651	0.0198	0.0365	0.5622	0.0199	0.0457
Saskatchewan	0.7284	0.0300	0.0471	0.7234	0.0300	0.0588
Alberta	0.3334	0.0089	0.0215	0.3318	0.0089	0.0270
British Columbia	-0.1429	0.0098	-0.0092	-0.1430	0.0098	-0.0116
<b>Period (Ref: 1976-81)</b>						
1981-86	-0.3234	0.0149	-0.0209	-0.3223	0.0149	-0.0262
1986-91	-0.2591	0.0111	-0.0167	-0.2575	0.0111	-0.0209
1991-96	-0.4103	0.0151	-0.0265	-0.4114	0.0151	-0.0265
<b>Place of birth (Ref: Born in same Canadian province)</b>						
Born in another Canadian province	0.8891	0.0048	0.0574	0.8879	0.0048	0.0722
Immigrant	0.3589	0.0075	0.0232	0.6599	0.0188	0.0537
Immigrant, born in Asia, Africa, Central or South America	0.0344	0.0097	0.0022	-0.0158 *	0.0108	-0.0013
Immigrant, years since migration				-0.0283	0.0016	-0.0023
Immigrant, years since migration squared				0.0005	0.0000327	0.0000438
<b>Sample size</b>	514,583			511,919		
<b>Log likelihood</b>	-237556.5			-236685.6		

\* indicates that the coefficient is *not* significant at the 5% level

The coefficients of Table 5 related to place of birth are of particular interest. First of all, among the Canadian-born, two categories are defined: individuals who lived five year prior to the census in the same province as where they were born, and those who lived in a different province.<sup>5</sup> The results indicate that Canadians who lived in a different province have an interprovincial mobility rate which is six to seven percentage points higher than the rate of those who lived in their province of birth. For immigrants, there are two dummy variables: one for all immigrants and one for immigrants from Asia, Africa, Central and South America (the reference category being immigrants from Europe and the United States). The coefficients of column (1) of the table, which does not control for years since migration, indicate that immigrants of both groups are also more mobile than Canadians living in their province of birth, but less so than Canadians who had already made at least one interprovincial move. This result, which is the same as the one obtained by Newbold(1996), provides some perspective on the mobility of immigrants. Although they are more mobile than Canadians in general, Canadians who have moved before are more likely to move again than immigrants. When one controls for years since migration (column (2)), the mobility of immigrants decreases with years in Canada, indicating that their behaviour approaches that of other Canadians. This confirms an earlier finding by Lam and Shin(1999).

Table 6 presents the ordered probit regression coefficients for mobility within and between provinces.<sup>6</sup> Some results differ markedly from those of the binary probit, indicating the importance to consider geographical mobility in its entirety, not only across provinces. For instance, the coefficients of sex and marital status show that married males and females are more mobile than single males, an opposite result from the one obtained for interprovincial mobility. In addition, the relationship between the French and other language mother tongues is reversed, the French being less mobile than people with other

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<sup>5</sup> For the 1991 and 1996 censuses and for the Atlantic provinces, information for province of birth was aggregated in the public use data. Individuals from the Atlantic provinces who changed province during the five-year period, and who were born in a different province from their destination one, were assumed to have been born in the province where they lived five years earlier.

<sup>6</sup> The marginal effects are not presented to avoid overloading the table. There would be one marginal effect for each change of level of the dependent variable, i.e., four marginal effects for each coefficient.

**Table 6. Ordered Probit Estimates, Five-Year Mobility Within and Between Provinces, Canada, 1976-81 to 1991-96**

(Mobility levels: No move; Same Census subdivision; Same Census division; Same Province; Different Province)

VARIABLE	(1)		(2)	
	Probit Estimate	Standard Error	Probit Estimate	Standard Error
<b>Intercept</b>	-0.4638	0.0565	-0.4654	0.0566
<b>Age</b>	-0.0243	0.0006	-0.0240	0.0006
<b>Age squared</b>	-0.000087	0.000007	-0.000085	0.000007
<b>Sex and marital status (Ref: male unmarried)</b>				
Male married	0.1634	0.0030	0.1627	0.0030
Female unmarried	0.1369	0.0033	0.1365	0.0033
Female married	0.1088	0.0030	0.1073	0.0030
<b>Years of schooling</b>	0.0170	0.0003	0.0173	0.0003
<b>Mother tongue Ref: English</b>				
French	-0.0360	0.0036	-0.0360	0.0036
Other	-0.1845	0.0035	-0.1917	0.0035
<b>Provincial unemployment rate</b>	0.00065 *	0.00120	-0.00029 *	0.00120
<b>Provincial average wage</b>	-0.000024	0.000002	-0.000025	0.000002
<b>Province of residence 5 years ago (Ref: Ontario)</b>				
Newfoundland	-0.2573	0.0170	-0.2512	0.0170
Nova Scotia	-0.1837	0.0135	-0.1840	0.0135
New Brunswick	-0.2472	0.0139	-0.2462	0.0139
Quebec	0.0046 *	0.0076	0.0054 *	0.0076
Manitoba	-0.0407	0.0110	-0.0430	0.0110
Saskatchewan	-0.0707	0.0166	-0.0758	0.0166
Alberta	0.0485	0.0049	0.0475	0.0049
British Columbia	0.0678	0.0049	0.0715	0.0049
<b>Period (Ref: 1976-81)</b>				
1981-86	-0.1797	0.0082	-0.1750	0.0082
1986-91	-0.1091	0.0061	-0.1045	0.0062
1991-96	-0.1796	0.0083	-0.1769	0.0083
<b>Place of birth (Ref: Born in same Canadian province)</b>				
Born in another Canadian province	0.4303	0.0028	0.4280	0.0028
Immigrant	0.1542	0.0037	0.6505	0.0097
Immigrant, born in Asia, Africa, Central or South America	0.1049	0.0047	-0.0063 *	0.0053
Immigrant, years since migration			-0.0392	0.0008
Immigrant, years since migration squared			0.0006	0.0000
<i>c</i> <sub>1</sub>	0.7265	0.0017	0.7273	0.0017
<i>c</i> <sub>2</sub>	0.9492	0.0018	0.9499	0.0018
<i>c</i> <sub>3</sub>	1.7518	0.0020	1.7530	0.0020
<b>Sample size</b>	513,667		511,092	
<b>Log likelihood</b>	-1748906.5		-1743882.0	

\* indicates that the coefficient is *not* significant at the 5% level

languages. While interprovincial mobility was in general higher for those living in provinces other than Ontario, we have the opposite results when intraprovincial mobility is added to the picture. This may be related to the fact that people in large cities are more likely to change residence, while staying in the same metropolitan area, than those in rural areas or small cities. On the other hands, other results are similar to those of the binary probit. This is the case of the period effects and the place of birth effects. In particular, immigrants are still more mobile than Canadians who lived in their birth province, but less mobile than those who have changed province. For immigrants, mobility still decreases with years since migration.

Tables 7 and 8 investigate *structural* differences in behaviour with respect to regional mobility between the Canadian and foreign-born individuals; in other words, we want to see if both groups respond in the same way to the incentives to migrate. This is done by interacting the immigrant dummy variable with all the independent variables of the regression. In each table, the top part gives the effects of the independent variables for the Canadian-born (the reference group), and the coefficients in the bottom part show the differences between immigrants and Canadian-born. If a coefficient in the bottom part is close to zero, this means that immigrants and Canadian-born have the same behaviour with respect to the related variable. If it is different from zero, the effect of the related variable can be either more pronounced or less pronounced for immigrants, depending on whether the sign is the same or different from the one of the same variable on the first part of the table.

The top part of Table 7 shows results that are similar to those of table 5, reflecting the fact that the sample is dominated by the Canadian-born. However, there are some differences. The coefficients of sex and marital status are not significant, although females are still less mobile than males. The coefficients of the provincial dummy variables indicate that mobility is still higher for most provinces other than it is for Ontario. However, Newfoundland and Quebec behave differently: in the first case, the coefficient becomes negative but not significantly; in the second case, the coefficient becomes significantly negative and much larger than it was in Table 5.

An inspection of the coefficients in the bottom part of Table 7 demonstrates without ambiguity that immigrants differ from the Canadian-born population in their interprovincial

**Table 7. Binary Probit Estimates, Five-Year Mobility Between Provinces, Canada, 1976-81 to 1991-96, With Immigrant Interactions**

VARIABLE	(1)			(2)		
	Probit Estimate	Standard Error	Marginal effect	Probit Estimate	Standard Error	Marginal effect
<b>Intercept</b>	-2.0848	0.1110	-0.1322	-2.0848	0.1110	-0.1328
<b>Age</b>	-0.0196	0.0014	-0.0012	-0.0196	0.0014	-0.0012
<b>Age squared</b>	-0.0000170 *	0.0000171	-0.0000011	-0.0000170 *	0.0000171	-0.0000011
<b>Sex and marital status (Ref: male unmarried)</b>						
Male married	0.0044 *	0.0067	0.0003	0.0044 *	0.0067	0.0003
Female unmarried	-0.0106 *	0.0072	-0.0007	-0.0106 *	0.0072	-0.0007
Female married	-0.0086 *	0.0065	-0.0005	-0.0086 *	0.0065	-0.0005
<b>Years of schooling</b>	0.0356	0.0008	0.0023	0.0356	0.0008	0.0023
<b>Mother tongue Ref: English)</b>						
French	-0.2544	0.0078	-0.0161	-0.2544	0.0078	-0.0162
Other	-0.2093	0.0110	-0.0133	-0.2093	0.0110	-0.0133
<b>Provincial unemployment rate</b>	0.0626	0.0027	0.0040	0.0626	0.0027	0.0040
<b>Provincial average wage</b>	0.0000069 *	0.0000046	0.0000004	0.0000069 *	0.0000046	0.0000004
<b>Province of residence 5 years ago (Ref: Ontario)</b>						
Newfoundland	-0.0411 *	0.0349	-0.0026	-0.0411 *	0.0349	-0.0026
Nova Scotia	0.1463	0.0271	0.0093	0.1463	0.0271	0.0093
New Brunswick	0.1249	0.0281	0.0079	0.1249	0.0281	0.0080
Quebec	-0.1449	0.0162	-0.0092	-0.1449	0.0162	-0.0092
Manitoba	0.4732	0.0216	0.0300	0.4732	0.021590	0.0301
Saskatchewan	0.6214	0.0324	0.0394	0.6214	0.0324	0.0396
Alberta	0.2343	0.0098	0.0149	0.2343	0.0098	0.0149
British Columbia	-0.2133	0.0109	-0.0135	-0.2133	0.0109	-0.0136
<b>Period (Ref: 1976-81)</b>						
1981-86	-0.3377	0.0162	-0.0214	-0.3377	0.0162	-0.0215
1986-91	-0.2778	0.0119	-0.0176	-0.2778	0.0119	-0.0177
1991-96	-0.4277	0.0163	-0.0271	-0.4277	0.0163	-0.0272
<b>Place of birth (Ref: Born in same Canadian province)</b>						
Born in another Canadian province	0.8947	0.0048	0.0568	0.8947	0.0048	0.0570
<b>IMMIGRANT INTERACTIONS:</b>						
<b>Intercept</b>	-1.1544	0.2965	-0.0732	-0.8999	0.2992	-0.0573
<b>Born in Asia, Africa, Central or South America</b>	0.0382	0.0104	0.0024	-0.0324	0.0114	-0.0021
<b>Years since migration</b>				-0.0293	0.0016	-0.0019
<b>Years since migration squared</b>				0.000484	0.000034	0.0000308
<b>Age</b>	0.0104	0.0034	0.0007	0.0162	0.0034	0.0010
<b>Age squared</b>	-0.0000572 *	0.0000405	-0.0000036	-0.0000959	0.0000415	-0.0000061

(Continued next page)

**Table 7 (continued)**

	(1)			(2)		
	Probit Estimate	Standard Error	Marginal effect	Probit Estimate	Standard Error	Marginal effect
<b>Sex and marital status (Ref: male unmarried)</b>						
Male married	-0.0331 *	0.0170	-0.0021	-0.0433	0.0172	-0.0028
Female unmarried	-0.0486	0.0193	-0.0031	-0.0523	0.0196	-0.0033
Female married	-0.0222 *	0.0168	-0.0014	-0.0343	0.0170	-0.0022
<b>Years of schooling</b>	0.0106	0.0016	0.0007	0.0107	0.0017	0.0007
<b>Mother tongue Ref: English)</b>						
French	-0.0323 *	0.0281	-0.0020	-0.0364 *	0.0285	-0.0023
Other	0.0908	0.0150	0.0058	0.0765	0.0151	0.0049
<b>Provincial unemployment rate</b>	-0.0111 *	0.0064	-0.0007	-0.0113 *	0.0064	-0.0007
<b>Provincial average wage</b>	0.0000366	0.0000123	0.0000023	0.0000344	0.0000124	0.0000022
<b>Province of residence 5 years ago (Ref: Ontario)</b>						
Newfoundland	0.9722	0.0990	0.0617	0.9287	0.1002	0.0591
Nova Scotia	0.7570	0.0741	0.0480	0.7339	0.0749	0.0467
New Brunswick	0.7423	0.0789	0.0471	0.7218	0.0799	0.0460
Quebec	0.5603	0.0389	0.0355	0.5553	0.0393	0.0354
Manitoba	0.5258	0.0563	0.0334	0.5171	0.0567	0.0329
Saskatchewan	0.8214	0.0876	0.0521	0.8036	0.0883	0.0512
Alberta	0.5099	0.0240	0.0323	0.5079	0.0242	0.0323
British Columbia	0.3135	0.0255	0.0199	0.3150	0.0257	0.0201
<b>Period (Ref: 1976-81)</b>						
1981-86	0.0988	0.0429	0.0063	0.1056	0.0433	0.0067
1986-91	0.1295	0.0325	0.0082	0.1465	0.0328	0.0093
1991-96	0.1289	0.0440	0.0082	0.1294	0.0444	0.0082
<b>Sample size</b>	514,583			511,919		
<b>Log likelihood</b>	-236540.4			-235642.5		

\* indicates that the coefficient is *not* significant at the 5% level

mobility behaviour.<sup>7</sup> It should be noted that this conclusion is in complete opposition to the one obtained by Newbold (1996) and Lin (1998) cited earlier. However, those authors' methodology and data did not allow the kind of comparison that is done in this study. The effect of age on interprovincial mobility for the immigrant interaction variable is of the opposite sign as the one of the Canadian-born and of about the same magnitude. This indicates that, contrary to what human capital theory would predict, the behaviour of immigrant does not seem to be influenced by age. However, years since migration has the expected negative sign, which means that immigrants base their behaviour on the time they arrived in Canada rather than on how old they are. The negative effect of sex is more pronounced for immigrants, female immigrants being less mobile than their native counterpart. Another interesting result is that the positive effect of schooling on interprovincial mobility is stronger for immigrants. Therefore, in the case of education, human capital theory predictions are reinforced for immigrants, while it was the opposite for age. Regarding the mother tongue variables, we observe no difference for French, while immigrants with other mother tongues tend to be more mobile than their Canadian-born counterpart. All the coefficients of the provincial dummy variables are positive and significant, indicating that immigrants are more likely to leave those provinces than the Canadian-born. Note that in Quebec and British Columbia, the immigrants' mobility behaviour is opposite to that of native Canadians. Finally, the period effects indicate that the decrease over time in interprovincial mobility is attenuated for immigrants. Put together, the provincial and period effects suggest that unobserved factors that contribute to increasing geographic concentration in Canada are acting more strongly on immigrants than on the Canadian-born people.

Table 8 performs a similar analysis for within and between provinces mobility. The coefficients in the top part are similar to those of Table 6, revealing again that the sample is dominated by the native-born. The bottom part shows again differences for immigrants.<sup>8</sup> As before, the effect of age is less pronounced and the effect of education is more pronounced for immigrants. The effect of sex and marital status seems to be cancelled for immigrants, a result that differs from what we had for interprovincial migration. Immigrants

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<sup>7</sup> This can be seen also by comparing the log likelihoods of Tables 5 and 7.

<sup>8</sup> As in the previous case, a comparison of the log likelihoods of tables 6 and 8 shows that the inclusion of the immigrant interaction dummies contributes to the explanatory power of the model.

**Table 8. Ordered Probit Estimates, Five-Year Mobility Within and Between Provinces,,  
Canada, 1976-81 to 1991-96, With Immigrant Interactions**

(Mobility levels: No move; Same Census subdivision; Same Census division; Same Province; Different Province)

VARIABLE	(1)		(2)	
	Probit Estimate	Standard Error	Probit Estimate	Standard Error
<b>Intercept</b>	-0.2645	0.0606	-0.2652	0.0606
<b>Age</b>	-0.0245	0.0006	-0.0245	0.0006
<b>Age squared</b>	-0.0000965	0.0000078	-0.0000964	0.0000078
<b>Sex and marital status (Ref: male unmarried)</b>				
Male married	0.1820	0.0033	0.1821	0.0033
Female unmarried	0.1556	0.0036	0.1557	0.0036
Female married	0.1326	0.0032	0.1326	0.0032
<b>Years of schooling</b>	0.0151	0.0004	0.0151	0.0004
<b>Mother tongue Ref: English)</b>				
French	-0.0360	0.0040	-0.0360	0.0040
Other	-0.2418	0.0051	-0.2418	0.0051
<b>Provincial unemployment rate</b>	0.0017 *	0.0013	0.0017 *	0.0013
<b>Provincial average wage</b>	-0.0000313	0.0000025	-0.0000313	0.0000025
<b>Province of residence 5 years ago (Ref: Ontario)</b>				
Newfoundland	-0.3209	0.0186	-0.3209	0.0186
Nova Scotia	-0.2459	0.0146	-0.2460	0.0146
New Brunswick	-0.3049	0.0150	-0.3050	0.0150
Quebec	-0.0250	0.0085	-0.0250	0.0085
Manitoba	-0.0807	0.0119	-0.0807	0.0119
Saskatchewan	-0.1394	0.0177	-0.1394	0.0177
Alberta	0.0186	0.0054	0.0186	0.0054
British Columbia	0.0524	0.0055	0.0524	0.0055
<b>Period (Ref: 1976-81)</b>				
1981-86	-0.1934	0.0089	-0.1935	0.0089
1986-91	-0.1249	0.0066	-0.1250	0.0066
1991-96	-0.1951	0.0090	-0.1952	0.0090
<b>Place of birth (Ref: Born in same Canadian province)</b>				
Born in another Canadian province	0.4336	0.0029	0.4338	0.0029
<b>IMMIGRANT INTERACTIONS:</b>				
<b>Intercept</b>	-1.2777	0.1713	-0.8803	0.1725
<b>Born in Asia, Africa, Central or South America</b>	0.1150	0.0049	-0.0172	0.0055
<b>Years since migration</b>			-0.0413	0.0008
<b>Years since migration squared</b>			0.0006	0.0000
<b>Age</b>	0.0097	0.0016	0.0181	0.0016
<b>Age squared</b>	-0.0000524	0.0000188	-0.0000947	0.0000191

(continued next page)

**Table 8 (continued)**

	(1)		(2)	
	Probit Estimate	Standard Error	Probit Estimate	Standard Error
<b>Sex and marital status (Ref: male unmarried)</b>				
Male married	-0.1454	0.0084	-0.1636	0.0085
Female unmarried	-0.1296	0.0096	-0.1404	0.0097
Female married	-0.1665	0.0084	-0.1879	0.0084
<b>Years of schooling</b>	0.0059	0.0007	0.0068	0.0008
<b>Mother tongue Ref: English</b>				
French	-0.0231 *	0.0141	-0.0286	0.0142
Other	0.1149	0.0071	0.0943	0.0071
<b>Provincial unemployment rate</b>	-0.0042 *	0.0030	-0.0077	0.0030
<b>Provincial average wage</b>	0.0000477	0.0000071	0.0000445	0.0000071
<b>Province of residence 5 years ago (Ref: Ontario)</b>				
Newfoundland	0.8894	0.0602	0.8545	0.0609
Nova Scotia	0.5429	0.0429	0.5188	0.0433
New Brunswick	0.5330	0.0465	0.5157	0.0470
Quebec	0.1504	0.0204	0.1491	0.0205
Manitoba	0.2716	0.0327	0.2578	0.0329
Saskatchewan	0.5979	0.0520	0.5687	0.0524
Alberta	0.1651	0.0136	0.1566	0.0137
British Columbia	0.0697	0.0122	0.0822	0.0123
<b>Period (Ref: 1976-81)</b>				
1981-86	0.0980	0.0241	0.1228	0.0242
1986-91	0.1066	0.0182	0.1388	0.0184
1991-96	0.1074	0.0242	0.1266	0.0243
$c_1$	0.7274	0.0017	0.7282	0.0017
$c_2$	0.9502	0.0018	0.9511	0.0018
$c_3$	1.7533	0.0020	1.7550	0.0020
<b>Sample size</b>	513,667		511,092	
<b>Log likelihood</b>	1747962.0		1742486.0	

\* indicates that the coefficient is *not* significant at the 5% level

with a mother tongue other than English or French seem to be more mobile than similar Canadian-born individuals. The coefficients of the provincial dummy variables show an interesting pattern: while for the Canadian-born mobility in other provinces tends to be less than in Ontario, for immigrant it is higher. Thus, immigrants' behaviour regarding intraprovincial and interprovincial mobility appears to be the same, while it differs for the native-born.

## **6. Conclusions and policy issues**

The purpose of this paper was to compare the internal mobility behaviour of the immigrant and native-born people in Canada. While this issue has been the subject of other studies, it is the first time that a formal comparison of the two groups is done. Another innovation of this study is that both mobility within a province and across provinces are considered. The data from five Canadian censuses provide a very large sample that can be used to examine mobility over four five-year intervals. The major findings related to the behaviour of immigrants are:

- S** Immigrants are in general less mobile than the Canadian-born people, except at the local level;
- S** Immigrants are more mobile than Canadians who still lived in the province in which they were born, but less mobile than Canadians who had already moved between provinces;
- S** The internal mobility of immigrants decreases with years since migration, both within and between provinces;
- S** Immigrants' internal mobility behaviour differs from that of the Canadian-born with respect to human capital factors; in particular, the effect of age is less pronounced for immigrants while the effect of education is more pronounced;
- S** Immigrants tend to leave in larger proportions than the Canadian-born the provinces where there are few immigrants, thus contributing to increasing the geographic concentration of the population;
- S** Geographic mobility has decreased less over time for immigrants than for the Canadian-born.

The major policy issue with respect to the geographical location of immigrants is how to induce them to disperse across regions rather than concentrate in a few

metropolitan areas. With respect to that objective, the results of this study are not encouraging. Not only do immigrants move away from the Canadian provinces which are considered less developed, but they do so more intensively than their Canadian-born counterparts.

The effects of some variables may have some policy interests. It was found that immigrants' internal mobility was more sensitive to education than that of the native-born. This is again discouraging and suggests that bringing highly educated immigrants to the less developed regions does not necessarily help. Those immigrants often come to those regions because they have job offers, but they tend to move at the first opportunity. Attracting and keeping those immigrants remains a challenge for regional economic policy. On the other hand, immigrants were found to be less sensitive to age in their moving behaviour than the Canadian-born. To the extent that there are benefits to having young immigrants, attracting them to the less developed regions may have an impact, given that they are more likely to remain there than their Canadian-born counterparts. Female immigrants were found less mobile, therefore more likely to stay in the region where they live than males. Also, the results for the language variables suggest that attracting English-speaking immigrants to English Canada and French-speaking immigrants to Quebec will make them more likely to stay where they are; however, in the market for international immigration, those are relatively few.

Finally, it was found that the effects of the provincial dummy variables are quite important. Those variables capture the effects of excluded variables that diverge across provinces. Among them, an important one is the role of ethnic networks. A recent study by McDonald (2002) shows that the initial location of immigrants is influenced by ethnic networks. It is probably also the case for their internal mobility within Canada after they arrive.<sup>9</sup>

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<sup>9</sup>The data used for this study did not allow to identify clearly that factor, partly because data were pooled from four censuses and that all the Canadian provinces except one were included. An analysis over a shorter period and for a smaller number of regions could identify that factor better.

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